

WHAT IS CLAIMED IS:

- 1 1. A via for use in a printed circuit board having a circuit, the via
2 comprising:
 - 3 a first interconnect; and
 - 4 a second interconnect located about at least a portion of the first
5 interconnect, the second interconnect being coaxial with the first interconnect and
6 inductively coupled with the first interconnect, the second interconnect being
7 connected to ground of the circuit.
- 1 2. The via of claim 1, wherein the first and second interconnects are
2 substantially concentric.
- 1 3. The via of claim 2, wherein the first and second interconnects are
2 cylinders in a single via hole.
- 1 4. The via of claim 1, wherein the second interconnect is operatively
2 connected to at least two layers of the printed circuit board.
- 1 5. The via of claim 1, wherein a series ground inductance present in the
2 signal return path is essentially canceled.
- 1 6. The via of claim 1, wherein the signal return has a voltage drop that
2 approaches zero.
- 1 7. The via of claim 4, where the layers are located in a single printed
2 circuit board.

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1 8. The via of claim 4, where the layers are located in a monolithically
2 integrated set of two or more printed circuit boards.

1 9. A printed circuit board comprising:
2 a plurality of vias according to claim 1.

1 10. A method of electrically interconnecting multiple layers on a printed
2 circuit board to provide a common ground plane for a circuit, the method
3 comprising:

4 connecting a first layer and at least a second layer to a via disposed in
5 a through-hole of a printed circuit board, the via comprising a first interconnect
6 and a second interconnect located about at least a portion of the first interconnect,
7 the second interconnect being coaxial and substantially concentric with the first
8 interconnect and inductively coupled with the first interconnect, the second
9 interconnect being connected to ground of the circuit.

1 11. The method of claim 10, wherein at least two layers on a printed
2 circuit board connect to the second interconnect to form one signal reference.